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THE GREAT SCHOOL OF WESTMINSTER.

WE have given previously sketches of the curricula of study pursued in and the general management of two of the great grammar schools of England, namely, those of Eton and Winchester. We propose to complete the series by describing one more, scarcely inferior in reputation. The description is taken, with merely verbal alterations, from the official report of the commissioners, and may be considered to be a trustworthy account.

Westminster School is a Grammar School attached, as is the case in many Cathedral establishments, to the Collegiate Church of St. Peter, Westminster, and founded by Queen Elizabeth for the free education of 40 scholars in Latin, Greek, and Hebrew. The statutes providing for the establishment and regulation of the collegiate body were passed in the second year of that sovereign, and, though apparently never confirmed, have been uniformly treated as of binding authority, and, in most of their important particulars, observed. The original copy is in the possession of the Dean and Chapter. The scholars were to have an allowance of a small annual sum for commons in Hall, and to receive gowns. It was further provided that there should be for their instruction a Head and Under Master, with certain annual allowances. In addition to the 40 scholars, the masters were to be allowed to educate with them other boys, of whom some were to be admitted as pensioners, provided, however, that the total number of the school should not exceed 120. The stipends of the masters, and the cost of maintenance, etc., of the scholars, constituted a charge on the general revenues of the collegiate body or chapter, the school being not endowed with any property or estates of its own.

The government of the whole school, so far as relates to the discipline, instruction, and ordinary school regulations, rests with the Head Master, subject, as respects the 40 Scholars on the Foundation, to the authority of the Dean and Chapter.

The Queen is Visitor.

There appears to be no doubt that, in fact, from a very early period other boys than the 40 Foundation Scholars were taught at the school, under the name of *Pensionarii*, *Oppidani*, or *Perigrini*. The number of such boys, and consequently the number of the whole school, have varied, from time to time, very considerably; but it appears that, from a very early time, at least as early as the year 1600, the statutory limit to 120 has been practically set aside. Thirty-five years ago, the total number was about 300; in 1843 it was 77. Since 1849, however, there has been but little variation; the maximum being, in 1854, 141, the minimum, in 1860, 123. In the school-list of 1861, the number is 136.

Candidates for admission to the Foundation (the members of which are called Queen's Scholars) are, under the Statutes, cap. 5, to be examined by the Electors, with whom also rests the selection of those boys among the seniors who are to receive at the Universities the Exhibitions hereafter referred to. These Electors are the Dean of Westminster, the Dean of Christ

Church, Oxford, and the Master of Trinity College, Cambridge, aided by two Examiners from their respective Colleges, called Posers, and the Head Master; and this is, in form, still the case, the boys being tested in some author before the Electors at their annual visit. The real test of qualification, however, is that which is afforded by a system of competition, which is termed "The Challenge," and which is thus described by Dr. Liddell, formerly Head Master: "It partakes somewhat of the nature of the old academical disputations. All the candidates for vacant places in College are presented to the master in the order of their forms; there were commonly between twenty and thirty from the fourth form upwards." The number of vacancies is usually about 10. "The two lowest boys come up before the Head Master, having prepared a certain portion of Greek epigram and Ovid's Metamorphoses, which had been set to them a certain number of hours before. In preparing these passages they have the assistance of certain senior boys, who are called 'helps.' With these boys, too, it should be remarked, they have been working for weeks or months beforehand in preparation for the struggle. The lower of the two boys is the challenger. He calls on the boy whom he challenges to translate the passages set them; and, if he can correct any fault in translating, he takes his place. The upper boy now becomes the challenger, and proceeds in the same way. When the translation is finished, the challenger (whichever of the two boys happens to be left in that position) has the right of putting questions in grammar; and if the challengee cannot answer them and the challenger answers them correctly, the former loses his place. They attack each other in this way, until their stock of questions is exhausted." "The 'helps' stand by during the challenge, and act as counsel to their 'men,' in case there be any doubt as to the correctness of a question or answer. The Head Master sits as moderator, and decides the point at issue." The boy who at the end of the challenge (or contest between the two boys) is found to have finally retained his place, has subsequently the opportunity of challenging the boy next above him in the list of candidates for admission, and of thus fighting his way up through the list of competitors. The struggle ordinarily lasts from six to eight weeks; the ten who are highest at its close obtain admission to the Foundation, in the order in which they stand. This position, as far as the college is concerned, they formerly retained for the period of their stay, which is ordinarily four years, though their places in class in school are regulated by the same principles as those of the Oppidans. Mr. Scott, the present Head Master, has, however, lately introduced a change, by which a boy can obtain promotion in the list of his own year, so as to obtain a higher place in the annual review of the college by the Dean, and in the order in which the candidates for Studentships and Exhibitions present themselves to the Electors. The system of competition thus described is peculiar to Westminster, and is much prized by old Westminsters generally. It should be added, too, that, until lately, the Foundation at Westminster was the only one among all the public schools to which admission was obtained by competition.

The Queen's Scholars are boarded and lodged at the expense of the Chapter, but not wholly gratuitously. A charge of from 34*l.* to 35*l.* is made to each scholar, 17*l.* of which are for tuition. The charges were formerly much larger. In return for this, Queen's Scholars have the exclusive right of competing for certain Exhibitions, which are as follows:

1. Three Studentships at Christ Church, Oxford, tenable for seven years, of the annual value of about 100*l.*

2. The Carey Exhibitions, amounting to about 600*l.* per annum, which are distributed by the Dean and Canons of Christ Church in sums of not less than 50*l.* or more than 100*l.* per annum.

3. Three Exhibitions at Trinity College, Cambridge, of the annual value of 40*l.* each.

The Exhibitions open to the whole school are,

1. Two Exhibitions from the bequest of Dr. Triplett, of the annual value of 50*l.*, tenable for three years.

2. An Exhibition from the bequest of the late Dr. Thomas, late Bishop of Roch-

ester, of the annual value of about 40*l.* per annum, tenable for two years.

In addition to the Queen's Scholars, there are four boys on the Foundation of Bishop Williams (Lord Keeper in the reign of James I.) to be elected, under a rule of the Court of Exchequer, made in April, 1836, "from boys born in Wales and in the Diocese of Lincoln alternately, and, in default of these, from Westminster. Vacancies are to be advertised," and the election made after an examination conducted by the Head Master. The income of the Foundation is about 72*l.* per annum. The boys were to have blue gowns provided for them, and to receive the rest of their dividend in books. Dr. Liddell abolished the blue gown, and offered to parents to remit all tuition fees on condition that the money (about 17*l.*) payable to each boy, yearly, should be paid to the school funds; and this is the present usage.

The Statutes, as already observed, contemplate the admission of boys to a number not exceeding 80 (in addition to the Queen's Scholars), designated by the various names of Pensionarii, Oppidani, Peregrini et alii. The first-named (Pensionarii), answering to the Commensales of Eton, were, it seems, to receive their education gratuitously, and to be lodged and boarded by the college with the Queen's Scholars at a certain fixed rate of charge. Each boy of this class was to provide himself, within fifteen days, with a tutor, who was to be responsible for him to the College, or Body Corporate. There does not appear to be any conclusive evidence as to what number of boys were ever admitted on this footing, though they are mentioned in a Chapter Order of 1584. It does not appear that they were taught gratuitously, and they had to defray the expense of their own board and lodging. The Town-boys, in 1861, amounted to 96, and were, with the exception of those living at their own homes, boarded and lodged in two boarding-houses, kept each by an assistant master.

The necessary expenses of a boarder may be roughly estimated as under,—

2 Great Schools, Entrance 10*l.*

Annually. { School Fees, 26*l.* 5*s.*
Board, etc., 68*l.* 5*s.*

The annual expense, therefore, is not far from £100, or $500 American gold.

The school (both Queen's Scholars and Town-boys being comprised under this general term) is distributed into ten forms, which at present are arranged for teaching purposes in six divisions, the numbers now in the school readily admitting this.

The forms are arranged as follows:

Sixth.
Remove.
Shell { Upper. / Under.
Fifth { Upper. / Under.
Fourth { Upper. / Under.
Third { Upper. / Under. } Under School.

Of these the Head Master takes the Sixth Form, and the Under Master, besides having the partial charge of the Under Fourth, takes the Under School. The other Divisions are allotted to four assistant masters.

The mathematical divisions of the school are generally coincident with the classical, subject only to an exception in the occasional case of a boy who is so far advanced beyond his class fellows as to make this a real injustice to him.

In French, the two highest forms are thrown together and divided anew to form the French classes; the same is done with the youngest. The intermediate classes are at present coincident with the forms. French and mathematics form a part of the regular school work, without extra fees. No other modern language is taught, nor are there "any appliances for the study of natural science." Both music and drawing are voluntary studies; but "a singing class is formed from time to time, under the instruction of Mr. Turle, the organist of the Abbey."

A drawing master attends for three periods of two months each in the course of the year, and sometimes more, if required. Each pupil is ordinarily with him for a period of an hour and a half in the week. "A class has comprised twelve or fourteen members."

In regard to the mode in which boys pass from one form, or sub-division of form, to

a higher one, Mr. Scott thus explains the system:

"Removes are given mainly according to proficiency, estimated partly by the weekly marks for lessons and exercises, and partly by examination. Twice a year, at Christmas and at Whitsuntide, trials take place, in which the the boys are required to translate on paper, passages from Greek and Latin into English, and from English into Latin prose and verse, all new to them at the time. Marks are given for this; and likewise, examinations, *viva voce* and on paper, are conducted by the masters, by which all the work of the half year is tested; no master examining his own form. There is also an examination in August, but no 'trials.' The marks for examination are then combined in certain proportions with those for form work, and the places" (or order in which the boys, if qualified, pass to a higher form) "are fixed by the result. In estimating the relative value of different subjects, I should say that classics reckon as fully two thirds of the whole, the remaining third being Greek Testament and Scriptural subjects, History, Geography, and English, so far as answers to historical and other questions on paper may be considered English composition."

"In cases of marked proficiency, mathematics are admitted as giving a claim to promotion. French has never done so, but I think that it might with advantage."

The hours of study in school are, on whole school days, viz., Monday, Tuesday, Thursday, and Friday, from 8 to 9, from 10 to 12:30, and from 3:30 to 5:30; on half holidays, viz., Wednesday and Saturday, the work terminates at 12:30. Those boys who board at home are allowed to come at 9 instead of 8, and it is arranged that one of the Masters should remain with them in school during the school breakfast hour, viz., from 9 to 10.

There is no definite rule as to the proportion of masters to boys. All the assistant masters are appointed by the Head Master. The Head Master himself and the Under Master are appointed by the Dean of Christ Church and the Master of Trinity alternately, with the consent of the Dean of Westminster. At present there are, in addition to the Head and Under master, four assistant classical masters, no one of whom seems to have more than 30 boys to teach, while one or two have a much smaller number.

The accommodation provided for the Queen's Scholars has been much improved within the last twenty years. Up to 1846, there was one large dormitory, in which all of the 40 Queen's Scholars lived by day and slept at night, there being nothing whatever in the nature of private rooms for study. They dined, as at present, in the college hall, but resorted for their breakfasts (and also for their lodging and the whole of their board, when sick) to the boarding-houses to which they had respectively belonged when Town-boys. No breakfasts were then provided by the Dean and Chapter. The cost of maintenance, coupled with that for tuition, averaged, at that time, from 80*l.* to 100*l.* per annum. When the late Dr. Buckland was Dean, he appears to have been much struck with the undue amount of this charge, and with the inadequacy, in many respects, of the accommodation provided for the Queen's Scholars; and by his advice, and under his personal superintendence, various improvements were effected, as well in the arrangements of the dormitory as in other respects, in consequence of which the boys are better and more comfortably lodged and fed, and the expense is, at the same time, very materially reduced. The total cost of the new arrangements was between 4,000*l.* and 5,000*l.*, of which the Dean and Chapter appear to have contributed 700*l.*, and the Queen the sums of 500*l.* and 300*l.*, the balance being met by the charge of 5*l.* per annum to the parents of each scholar, until the total debt should be paid off. At the same time, the Chapter undertook that the total expense of each scholar should not exceed 45*l.* per annum. The debt upon the new buildings having been paid off, and it having been found practicable to make certain reductions in other respects, the charge to the parents of Queen's Scholars has been further diminished, and now is from 34*l.* to 35*l.* per head, of which, as previously stated, 17*l.* are paid for tuition. Under the new arrangements, the dormitory is divided into 40 distinct sleeping

places, ranged on each side of a central passage, which runs the whole length of the building, and separated from each other by close permanent partitions of about eight feet high, and from the passages by partitions in which curtains are substituted for the panels.

There have been also provided under the dormitory, by closing up what was in the original construction of the building an open cloister, two large rooms, intended for the junior elections (or divisions of the Queen's Scholars) to read in, with a certain number of small private studies partitioned off, and each holding two of the upper boys, with the exception of one which is occupied by the Captain alone. On the whole, the arrangements of the dormitory, etc., appear to afford adequate accommodation. The sanatorium connected with the dormitory, and intended for the use of Queen's Scholars, was built at the time at which the alterations were made which are above adverted to, and is very well adapted for its purpose. It is under the charge of a resident matron. The Chapter have also recently formed a covered play-ground for the Queen's Scholars at a very considerable expense.

As regards board, the Queen's Scholars breakfast, dine, and sup in the college hall.

The boys ordinarily have tea or coffee in college after their hall supper. This is made by the juniors, but is paid for by the boys of the two upper divisions (seniors and third election), and the lower boys have what remains of it after the upper boys have finished.

The immediate charge of the college rests, under the general superintendence of the Head Master, with the Under Master, who occupies a house immediately adjoining the dormitory, and communicating with it by a passage.

The punishments in use in the school are the rod, applied either to the back of the hand, or in the ordinary mode of flogging, impositions to be learnt by heart or written out, confinement to Dean's Yard, and refusal of leave out. Flogging, according to Mr. Scott, has very much diminished in frequency, there not being ordinarily more than one or two cases in a half-year. It takes place in a room in the back of the school, and is inflicted, so far as the upper school is concerned, by the Head Master, in the presence of one boy besides the culprit. Boys in the under school are punished by the Under Master.

The master is aided in the maintenance of discipline by some of the elder boys. The four head boys on the Foundation are called the Captain and Monitors, and are formally intrusted with authority by the Head Master in the presence of the school, a set form of words being used on the occasion; they are specially charged with the maintenance of discipline, generally, and, in respect of Queen's Scholars particularly, have a recognized and limited power of punishing breaches of discipline, or other offences, such as falsehood or bullying. Over the Town-boys they have, according to Mr. Scott, "a certain authority, also, but there is a jealousy about this."

Mr. Scott further states, that "the head boys are responsible for the lists of absentees when leave is given, and are charged with the duty of seeing that station is kept," i. e., that "in play-hours, the boys be in the play-ground, unless some reason has been allowed for absenting themselves."

Mr. Scott considers "some such powers as are possessed by the Monitors highly conducive to discipline, as enlisting the elder boys in support of law and order;" but he appears to think that the system is one which requires watching—an opinion in which the Commissioners concur.

M. Julien Travers has lately picked up at Caen, a manuscript entitled "Manuel d'Education pour les Directrices de Classes de St. Cyr," consisting of 200 pages, the first 83 in the well-known handwriting of Madame de Maintenon, and the remainder in that of Mademoiselle d'Aumale, who frequently acted as her secretary.

THE HIGHER SCHOOLS IN PRUSSIA.

So much has been said by many enthusiastic admirers of the Prussian system of education, that we are induced to give our readers a summary of the plan and mode of instruction employed in the higher schools. There are, it is true, the Elementar-Schulen, or primary schools, and the Mittel-Schulen, or middle schools, both of which impart, in a greater or less degree, the rudiments of practical knowledge; but it is not our purpose to deal with these at present. The higher schools are divided into Gymnasien and Real-Schulen, whose points of difference will be seen by an examination of their curricula of instruction. There are now 143 Gymnasien and 61 Real-Schulen, of which the latter are all day-schools. Of the Gymnasien, three are boarding-schools, and some have boarding-houses in connection with them. Of the Gymnasien, 102 are Protestant and 39 Catholic; but, with the exception of a few that have church foundations, they receive pupils of every religion. In Posen and Silesia there are some forms of the schools that have more Hebrew than Christian pupils. All of the Real-Schulen, and the greater part of the Gymnasien, are supported by the king, the state, or municipalities.

The instruction given in the higher schools comprises the following subjects:—The Christian religion, the German, Latin, and French languages, history, geography, mathematics, natural science, writing, drawing, singing, and gymnastics. But the basis of the course in the Gymnasien is Latin, Greek, and mathematics; while in the Real-Schulen, it is mathematics, physical sciences, and the modern languages. Both sets of schools have six classes, or forms, some of which are sub-divided, ascending from the sixth to the first. To be admitted to the sixth form a boy must have a knowledge of reading, writing, and arithmetic, and, as a general thing, must have passed his ninth year. The whole course lasts from eight to ten years. There are, it is true, other schools on the same principle, which only carry up the instruction to the third or fourth classes, and these are called Progymnasien and höhere Burger-Schulen. And there are private schools, but they rarely carry their plan of instruction beyond the first class.

Private schools have little chance of success in Prussia, because their pupils labor under disadvantages compared with those of the Gymnasien or Real-Schulen; for no person can enter himself as a student of any faculty at any university, nor qualify himself for even a bachelor's degree in law, medicine, or divinity, nor aim at any office or employment in church or state, for which it is legally necessary to have a college course either of three or four years, nor enjoy any of the public exhibitions founded for the assistance of university students, unless he has successfully passed the examination known as the *Maturitäts-prüfung*, or *Abiturienten-prüfung*, held at one of the Gymnasien, mainly conducted by the masters of the latter, and arranged with direct reference to its studies. Similar examinations are held at the Real-Schulen, and it is through these last that young men are admitted into the corps of *chasseurs à cheval*, to posts in the civil service, or suffered to enter the public schools of music, mining, veterinary surgery, agriculture, and horticulture.

A reference to the statistical account will show that there were 1,456 pupils, in 1860, who entered the universities after passing their final examination in the Gymnasien. Of these there were 696 students of theology, divided into 360 Catholics, 335 Protestants, and 1 Jew; 249 law students; 279 medical students; 153 students of philology and philosophy, and 74 who pursued mathematics and natural science. Besides these, there were 60 who entered the Bau-Academie, and 245 who entered the army. This would make the whole number of graduates 1,756, but it is returned at 1,759, leaving three whose after pursuits, if they survived, is unaccounted for. The proportion, however, of those who passed through the final examination, did not average more than fifteen per cent.; many leaving before they arrived at the first form, to enter on commercial or indus-

trial pursuits. The same may be said of the Real-Schulen pupils.

There are some strictly commercial schools in Prussia; but it is generally considered that the course of instruction in the Gymnasien, or even in the Real-Schulen, better fits the boy for business than even special training.

The only census of public schools to which we have immediate access, is that for 1858, taken from the Prussian "Jahrbuch." It gives the number of boys in elementary schools as 1,376,278; middle schools, 46,982; real-schulen and *höhere burger-schulen*, 22,046; progymnasien, 3,346; gymnasien, 38,700. In private schools there were in the elementary, 22,893, and in the higher grades, 6,255 pupils. Taking both sexes, the number of pupils was 3,501,393. The increase since then may be inferred, however, by that of the Gymnasien scholars, which rose, in 1861, to 40,043.

A right of supervision of all schools, public or private, rests with the state. It is even necessary in private schools, that a teacher, previous to his appointment, should have a certificate of his qualifications from the proper public officers. There is a local superintendent in every town, who supervises the elementary and the higher private schools. There is a board of directors, or curators (*Schul-Curatorium*), to nearly every one of the Gymnasien and Real-Schulen; and over the internal and external affairs of the schools of each province there is authority vested in the Royal Provincial School Board (*Königlich-Provinzial-Schul-Collegium*). Inspections are held from time to time, and the final examination presided over, by the *Schul-Räthe* of the several districts. Besides this, the Minister of Education directs extraordinary inspections when he thinks it needful. The provincial authorities transmit regular reports of the condition and action of the schools to the minister, who directs thereon such modifications as he deems to be expedient. The inspections refer not only to the course of study, but to the method of teaching, text-books, discipline,—in short, to everything relating to their management, internal and external. Teachers may be dismissed, as well as appointed, by the board, but not without the consent of the state authorities. But this must be done, in conformity with law, by a regular judicial process, in which the accused party is heard in his defence, and from which he can appeal to the ministry, as a whole. A person who has been legally appointed a teacher, is entitled to a pension in case of age and infirmity, after sixteen years of service, and in amount according to the time served, varying from one-fourth to three-fourths of the annual salary—a custom which, it strikes us, might be followed here, with great public advantage.

Boys cannot be admitted in the Gymnasien under ten years of age, and candidates must read fluently German and Roman text, know the parts of speech, parse a simple sentence, write orthographically, and write legibly and neatly from dictation, work readily the first four rules of arithmetic and the elements of fractions, have an elementary knowledge of European geography, be familiar with the history of the Old Testament and the life of our Saviour, and have practice in the rudiments of drawing, together with a knowledge of elementary geometry.

The objects of instruction and the amount of time devoted to each subject may be seen by the following tables, in which the Roman numerals represent the classes, or forms, and the Arabic numerals the number of hours per week assigned to the several studies. The first table is that of the Gymnasien, by the ministerial scheme of of 1856, and the second, that of the Real-Schulen, by the scheme of 1859, since when there has been no alteration:

SCHEME OF THE GYMNASIEN.

Subjects.	I.	II.	III.	IV.	V.	VI.
Religion, . .	2	2	2	2	3	3
German, . .	3	2	2	2	2	2
Latin, . .	8	10	10	10	10	10
Greek, . .	6	6	6	6	—	—
French, . .	2	2	2	2	3	—
History and Geography,	3	3	3	3	2	2
Mathʼties and Arithʼtic,	4	4	3	3	4	4
Physics, . .	2	1	—	—	—	—
Natural History, .	—	—	2	—	(2)	(2)
Drawing, . .	—	—	—	2	2	2
Writing, . .	—	—	—	—	3	3
Total, . .	30	30	30	30	30	28 (27)

SCHEME OF THE REAL-SCHULEN.

Subjects.	I.	II.	III.	IV.	V.	VI.
Religion,	2	2	2	2	3	3
German,	3	3	3	3	4	4
Latin,	3	4	5	6	6	8
French,	4	4	4	5	5	—
English,	3	3	4	—	—	—
Geography and History	3	3	4	4	3	3
Natural Science	6	6	2	2	2	2
Math'tics and Arith'tic,	5	5	6	6	4	5
Writing,	—	—	—	2	2	3
Drawing,	3	2	2	2	2	2
Total,	32	32	32	32	31	30

With this it may be well to compare the scheme recommended last year by the English Board of Commissioners of Public Schools; and then let teachers here make further comparison with the system they have adopted for themselves. The English scheme only recommends twenty hours of study, in school, and divides it as follows:

Classics, with History and Divinity,	11
Arithmetic and Mathematics,	3
French or German,	2
Natural Science,	2
Music or Drawing,	2
	20

Perhaps it is unfair to compare the Gymnasien with the English public schools, or our own; the former taking rank with Eton or Winchester, abroad, or our smaller incorporated colleges, there being more similarity in the curricula of studies of the latter with the higher German schools.

Under the Director of the Gymnasien are the Masters of Forms, or classes (*Ordinarii*), each of whom has the same control over his form as the Director, or Head Master, has over the school. The Royal College selects them from the school where a vacancy occurs, or from other schools, and it is from these Form-masters that the Minister appoints the Directors.

The hours of work are four hours daily, in the forenoon, and, during four days in the week, two hours in the afternoon; fifteen minutes recess for play being allowed after the second hour in the forenoon, and the first hour in the afternoon, with a pause of five minutes between every hour's teaching, and an interval of two hours between forenoon and afternoon. There are two half-holidays per week, and the regular holidays of the year take up two months. To this arrangement we give our unqualified approval. It is, theoretically, what a child can undergo without injury, if the school-room be large and well ventilated; and the experience of the German schools, for many years, show that the theory is sustained by practice.

Such arrangement of the lessons as the Director may choose is permitted in the schools, subject to the scheme of hours which we have furnished in the previous tables. In the Gymnasien the hours devoted to Religion, Languages, and Mathematics, must not be diminished, but on the others slight modifications are permissible. French is not to be begun below the third form, there being one new language, Greek, in the fourth; natural history can replace physics in the second form. "Where boys have peculiar aptitude for drawing or singing,* they are to be allowed to pursue these studies in the upper, as well as the lower forms." And the authorities recommend Directors, in order to avoid confusing the boys' minds, that two successive hours should be assigned, when practicable, to one subject, so that three, or, at most, four subjects, be taken in the day, and "that subjects requiring the closest attention should occupy the morning hours."

In regard to other matters the following extracts from the instructions of the Minister of Public Education to the Directors of Gymnasien, will furnish the required information, it being borne in mind that the same general principles govern the method of the Real-Schulen:

"*Work done at Home.*—This is a very important part of the studies of the Gymnasien, and great care is to be taken that it be effective, and on the other hand that it occupy not too much of the boys' spare time. It affords the best test of the degree to which the boy has apprehended what he is taught and has made his own. It should consist partly of tasks set and looked over; but a portion of time, vary

* By a more recent circular, singing is omitted from the list of subjects of instruction, the pupil being expected to learn that at home. Gymnastics is also omitted.

ing according to the boy's form and capacity, should always be left for private reading of Greek, Latin and French classics. in which the office of the teacher is rather to guide than to compel. The general subjects to be given for home-work are to be settled at the beginning of each half by the Masters in conference, and distributed by months, weeks, and days. There must be a task book for each form, so that the tasks set and the amount of time thus engaged may be always ascertainable at a glance by the Form-Master or the Director. The Master of each form is bound to look over the tasks of his whole form once a month at least, and the Director must once a month at least look over all the tasks of some one form. He is strictly enjoined to be vigilant in restraining the practice of setting for German and Latin essays subjects of too abstract a character, and of which the boys have no knowledge, to bring out 'what are called their own thoughts' (*bei welchen der Schüler über ganz abstracte oder ihm unbekannte Gegenstände sogenannte eigene Gedanken produciren soll*), a practice, the Instructions say, which is too common, but which can but torment the pupil and is discreditable to the teacher. It is the duty of the latter, on the contrary, not only to give a theme which the boy can in some degree master (*einigermassen beherrschen*), but also to explain clearly the point of view from which he wishes it treated.

"*Progress from Form to Form.*—In each of the three lower forms every boy should remain one year, a period not long enough to weary and discourage him, yet long enough to make him feèl the difficulty of the form-work, and enable him to master it thoroughly without an undue strain upon his powers. In each of the three upper forms the regular period is two years, but as to this no absolute rule can be laid down. At a more advanced age it is not necessary to guard so carefully against over-exertion as it is in the lower forms, and a boy's rise may therefore be accelerated by ability and industry. Promotion, however, must depend on proficiency, not in one branch of study only, but in all; not that equal progress is required in all, but no boy can rise from one form to another unless in all the principal subjects he has reached that grade of knowledge which the standard of the higher form requires.

"*Manner of Teaching.*—It is a frequent subject of complaint, that whilst in the elementary schools a remarkable advance has been made during the present century in the method and practice of instruction, this improvement has not extended to the higher schools. The younger masters in the *Gymnasien*, it is alleged, do not pay sufficient attention to the difficult art of teaching (*die schwere Kunst des Unterrichtens*); they are too apt, instead of thoroughly grounding their scholars, to overwhelm them with a mass of undigested knowledge which they cannot assimilate; and they try rather to lecture like University professors than to teach like schoolmasters; their instructions want life and animation; they fail to accommodate themselves to the capacity of young minds, and they are unable to penetrate, keep on the alert, and handle successfully large masses of boys; and they are too apt to attribute the unsatisfactory results which too often follow, especially as regards proficiency in the classics, in German and in history, to the stupidity and idleness of their pupils instead of the right cause. The Minister cannot and does not undertake to decide how far these accusations are just; all that he can do is to place them without disguise and in the strongest light before the eyes of those whom they concern. The teachers, by assiduous attention, careful study of the best methods and examples, and diligent practice; the Directors, by watchful supervision, by frequently taking forms themselves, and by counsel and suggestions, given at the *Lehrer-conferenzen*, and to the aspirants during their trial year; the *Schulcollegien*, by a judicious selection and promotion of teachers, by introducing the best school-books, and by making use of the opportunities afforded by examinations and periodical inspections, may remove all pretext for these charges, and they are earnestly enjoined to do so.

"*Natural History* in the Fifth and Sixth forms is to be omitted wherever, in the opinion of the *Collegium*, the school does not possess a teacher capable of making it intelligible and interesting to young boys. In such case the Sixth will give one hour

more to Geography and the Fifth one hour more to cyphering. The Geographical teacher should, however, take occasion to bring in the subject in dealing with his own. It is to be omitted in the Fourth, since both Greek and Mathematics begin in this form. If there is no competent teacher of natural science for the Third Form, one additional hour is to be given to history and one to French. The history of Brandenburg and Prussia is always to form part of the work of the Third.

"*No deviations to be allowed.* Deviations from the scheme are not, henceforth, to be allowed, except such as have been first submitted to the Minister of Education and received his sanction.

"No dispensation from the study of Greek is hereafter to be allowed, except with the approval of the Provincial *Collegium*, in small towns where there is not, besides the *Gymnasium*, a *Real-Schule*, or a *Höhere Bürger-Schule* in which Latin is taught. Whenever such a dispensation is granted, the boy is to be informed that, by accepting and acting under it, he is thereby excluding himself from the final (*abiturienten*) examination."

PRIMARY INSTRUCTION.

II.

The Method of working out Perception of Place and Imitation of Position.—The teacher may place two objects upon a table before the children, requesting all to observe their position. A child may be directed to come forward and arrange two similar objects in the same way, others observing and deciding whether they are placed alike. Different children may be encouraged to place objects as they please, others imitating the position. The attention of all should be riveted upon the one at work, or the lesson will not answer its design. Fifteen minutes a day, for several lessons, can be spent very profitably in this way, if the majority are kept interested during the time. Three children may be required to stand in a certain order. Two or three others might take members of the class and arrange them in a like manner. All will notice and decide as before.

Imitation from Memory.—Two or three objects may be adjusted. When the position has been attentively observed, disarrange them and request all who think they can come and place them just as they were, to raise the hand. After a trial has been given, allow the class to criticise the imitation. Vary the position and proceed as before, for several lessons.

If the children have desks, all may be engaged at once. The teacher will place upon the table a book, a slate, and a pencil, in every conceivable manner, requesting in each case all to observe and remember how they are placed. Remove them, and desire all to place their book, slate, and pencil, exactly as those upon the table were arranged. The teacher will criticise the children's work after each trial.

Two or three little ones may be sent to different parts of the room. When observation has been directed toward them, and they have taken their seats, request all who think that they can place the same children in the same way, to raise the hand. Several failures will occur, but the exercise should be repeated. This will interest the children, and teach them to be accurate in their observations.

Drawing.—Marks being placed upon the board and erased, all can be exercised in imitating the arrangement upon their slates. The teacher will need to exercise some ingenuity and good judgment in varying the situation of objects. At first, it should be simple, but, as the children become accustomed to observing more closely, the disposition should be more complicated —commencing with perpendicular lines, and going through horizontal and diagonal lines to their various combinations.

Positions of an Object upon a Table described.—Introductory to these exercises, it

is necessary for the teacher to ascertain whether all are able to distinguish the right and left hand side of the table.

Place an object upon a corner; request the class to say where it is placed. The answer will be "On the corner." Place the hand on some other corner, expressing surprise at not finding it, to lead them to see the necessity of defining the position more accurately. "Suppose the room were dark, who could tell me where the object is, so I could find it at once," etc. They will now probably be anxious for some assistance. Desire some child to come and pass the hand along the side nearest to them, another the side farthest, one touch the side towards the right hand, another towards the left hand. Touch the corner nearest on the right hand side, the corner nearest on the left hand side, etc. Even these exercises, simple as they appear, are to many children really developing lessons, and frequently necessary to prepare the class for the succeeding training. Place an object upon the different sides and corners of the table. Encourage all to observe and be prepared to say where they are—for example: "The bell is on the right hand side of the table." "The book is on the left hand side." "The pencil is on the nearest corner on the right hand side." "The knife is on the farthest corner on the left hand side." "The key is between the nearest corner on the right hand side and the farthest corner on the left hand side." This cannot be accomplished in a day. Some will be extremely slow of speech; almost every word must be drawn from them by questioning. The teacher will not forget that the chief design of all such lessons is to "draw out," not to "pour in." The words are not put into the mouths of the children. Many blunders will be made before the sentence is properly constructed. It requires time and patience to accomplish this; but the faithful instructor will persevere, leading the class to observe minutely and express accurately until they are able to repeat the sentences without hesitation. It is a developing process. How gratifying it is to see the interest manifested by our children thus exercised, and to mark their improvement in quickened perception and in the use of language. It has been a sad defect in our primary schools, that the little ones have had so little opportunity afforded them to express their ideas in language. If we cause young children to observe and to express the result of their observations, we are exercising faculties of the mind that are not developed in the ordinary routine of primary instruction, and this should encourage and strengthen one engaged in the high and holy office of unfolding the immortal powers of the youthful mind.

Outline of the Lessons on the Globe.—The globe should be used as an object representing the earth,—its form and general appearance observed as the children have been accustomed to view other objects. Before presenting the globe, refer to the map previously drawn. "When the map of the school-room was drawn, in what respect was the picture like the room?" "It was the same form." "How did it differ?" "It was only a picture, and very much smaller." These answers will be given promptly if the previous lessons have been taught properly. Tell them that the globe represents the earth upon which we live. "What form is the earth?" "Spherical," will be the reply, if the lessons on Form have been given successfully. During the course on Form they are made familiar with the sphere and taught that those things having the same form as the sphere are said to be spherical. The idea has also been developed that the outside part of any thing is called the surface. Inform the class that the surface of the globe represents the surface of the earth. "Is every part of the surface of the globe alike?" "Some parts are colored." Tell them that the colored parts represent land, and the light spots water; we live upon the surface of the earth.

Matter brought out by Observation.—There are five divisions of land. There are five divisions of water.

Information given.—Names of the five great divisions of land and water.

Hemispheres distinguished and named.—The term will be familiar, the idea having been developed in the Lessons on Form.

Position of the Great Divisions of Land and Water.

The southern parts of the division of land are pointed.

The divisions of land widen towards the north.

The oceans are narrowed to a point on the north.

The Pacific has the form of an oval. The Indian has the form of a triangle.

The land in the Eastern Hemisphere is longer from east to west.

The land in the Western Hemisphere is longer from north to south.

It will be impracticable, in an article of this kind, to explain the method of bringing out all the matter indicated. The successful teacher will draw out the ideas from the children themselves, thereby cultivating observation. She will lead the class to express their ideas thus gained, thereby cultivating language, and by frequent repetition memory will be strengthened. If the course on Size, Form, and Place, including the lessons on the Globe, have been properly presented, we deem the class prepared to take a Primary Geography in connection with the Globe and Maps. When the maps are studied, the class should for some time be taught to observe them in connection with the globe. Much of the instruction should still be oral. The map of each hemisphere is observed as a representation of half the surface of the earth. Lead the class to see that if half the globe were flattened, it would appear like the map of one of the hemispheres, etc. Let them point out the great divisions of land and water on the globe, then on the map. When some general ideas have been gained concerning each grand division, the map of the United States may be viewed, first as a part of North America, then taken up more in detail. This course is followed by map drawing and definitions of the subdivisions of land and water.

NAPIER AND LOGARITHMS.

AN interesting account of Napier and his logarithms appears in the London *Museum*, for October, from which we condense the main points. By this it seems that John Napier, of Merchiston, wrote a Scriptural Commentary, which has scarcely survived him. Theology was his pursuit, science his amusement. His work is forgotten; his play has rendered him honors. Napier was emphatically an arithmetician. The invention by which his name became known amongst the vulgar, was what he called his *bones*. They were little rods, employed, like the abacus of the ancients, or the swan-pan of the Chinese, for the purpose of facilitating arithmetical computations. No doubt Napier was generally laughed at by the citizens of Edinburgh, his cotemporaries. He may have been feared too, for he had the reputation of being an adept at the black art, and, as we shall see presently, he had earned the reputation fairly. These bones, you may be sure, were regarded by the rustics as something very different from the multiplication table. The author of Hudibras, when he rummages the astrologer's pocket, turns out, amongst other things,

> "A moon-dial with Napier's bones,
> And several constellation stones,
> Engraved in planetary hours
> That over mortals had strange powers."

It is to be presumed Butler had a very indistinct idea of what Napier's bones were, and that it was their name rather than their use which procured them the honor of a place in the catalogue of the astrologer's stock in trade. Men like Napier were fair game for the witty. Astronomy and astrology were, in the eyes of the vulgar, one and the same science. So Napier was dubbed astrologer. But did he deserve the title? Truth compels us, unwillingly, to confess he did. Truth compels us to admit that it was not the vulgar alone who connected astrology with astronomy. Superstition was the favorite child of ignorance, and she was nursed so carefully, and brought up so respectably, that she became

wedded to learning. It was an unholy union certainly, but it took place, notwithstanding. Tycho Brahe kept a soothsaying idiot; Kepler cast nativities, and spent much time in the construction of prophesying almanacs, nay, to his skill in the art of astrology he owed his connection with the camp of Wallenstein; and John Napier, Scotland's pride and boast, had most certainly (why not?) an astrological bump in his cranium.

Mr. Mark Napier, who deserves the best thanks of all good Scotchmen, by the publication of an elaborate biography of his namesake, has presented the world with a curious document, dated July, 1594, being no other than a contract or agreement between John Napier of Merchiston, and Robert Logan of Restalrig, the greatest rogue unhanged, whereby the former undertook to exert all his craft and ingine (? *ingenium*) to find out for the latter certain treasures hid, or supposed to be hid, in Fast Castle, the Wolf's Craig of the Bride of Lammermoor. The document stipulates, amongst other things, "that the said Robert shall give unto the said John the just third part of whatsoever treasure the said John shall find, or which shall be found by his means and ingine, within or about the said place of Fast Castle. And for the said John's sure return and safe back-coming therewith to Edinburgh without being spuilzit (spoiled) of the said third part, or otherwise harmit in body or gear, the said Robert shall make the said John safe convoy and convey and accompany him safely back to Edinburgh, when the said John being safely returned, shall, in presence of the said Robert, cancel and destroy his present contract," and so on. (Signed) "Robert Logan of Restalrig. John Neper of Merchiston." Napier seems to have had misgivings about his safe return, and if the character of Logan be not much misstated he had ample ground for misgivings. We know nothing further about the issue of this transaction. We know not what amount of good or ill accrued to Napier from his association with Logan, whether his knowledge of the stars enabled him to track out the hidden treasure, or whether, having discovered it, Logan spuilzied him of his just third part thereof. History is silent on the subject. All we do know is this, that in a lease granted by Napier two years after this transaction, he specially forbids his tenant to sublet any of the property to any one of the surname of Logan.

This little episode in the history of Napier may perhaps help us to admire still more the brilliancy of that intellect which could shine so highly in an age remarkable for mental mist. It may be that Napier's conviction of his error impelled him to closer attention to his abstract studies. For the next twenty years he devoted himself to the perfection of his logarithms, undergoing an amount of monotonous toil, which, in these days of progress, we can hardly understand. Napier was a good man and a devout. He labored as one who loves his work for his work's sake. In 1614, when, to use his own words, his body was "now almost spent with sickness," he published his logarithms. The *Canon mirificus* contains his heart's blood, and is his imperishable monument. Napier did not long survive. He died before the murmur of the applauding voices of remote nations could reach his fear. His prophetic soul perhaps kindled at the homage of countless ages which should rise in social position by his labors, but the heart of flesh had no part in the joy of the heart of love.

If the name of Napier be not the greatest name on the page of scientific history; if the invention of logarithms be not, as Sir John Leslie declares it is, "the noblest conquest ever achieved by man;" if Scott and Knox and Burns and Watt are fresher names to Scottish ears, there is no invention of such undivided originality, none of such wide-spread utility, as the invention of logarithms. The name of Napier circulates amongst nations where Knox and Burns and Scott are scarce heard of. These men lived for Scotland, for Britain, Napier lived for the whole human race. Whilst we honor these great men with abundant honor, let us not suffer the breadth of Napier's fame to shut out the recognition of his right to be numbered amongst the noblest Scotch worthies.

Most of our readers may stop here. But as the principle on which Napier construct-

ed his logarithms is not generally known, and particularly as modern readers are puzzled with the complexity of that number whose logarithm is unity, which is sometimes inaccurately termed the *base* of the Napierian logarithms, it may not be uninteresting to set down very roughly, and without elaboration, a set of numbers calculated on Napier's principle. These numbers, when fully developed, are known as Napier's logarithms, but in reality they are more properly the complements of those logarithms. We write down, then, in one column, a series of fractions, differing by a constant small amount—the smaller the better. We shall suppose it ·01. This is one column of logarithms. To obtain the corresponding numbers, we start with 1 as the number whose logarithm is 0, and obtain the successive numbers by taking each as the product of the last and the given logarithms, difference, ·01. We have thus:

Logarithms.	Numbers.
·00	1
·01	1·01
	·0101
·02	1·0201
	·010201
·03	1·030301
	·010303
·04	1·040604
	·010406
·05	1.051010
	·010510
·06	1·061520
	·010615
·07	1·072135
	·010721
·08	1·082856
	·010828
·09	1·093684
	·010936
·10	1·104620

If we continue our process we shall at length, with very little labor, obtain the number of which the logarithm is 1. As a very rude approximation, we will now advance by intervals of ·1 instead of ·01. Thus:

Logarithms.	Numbers.
·1	1·104620
	·110462
·2	1·215082
	·121508
·3	1·336590
	·133659
·4	1·470249
	·147026
·5	1·617273
	·161727
·6	1·779000
	·177900
·7	1·956900
	·195690
·8	2·152590
	·215259
·9	2·367849
	·236784
1·	2·604633

So that, very roughly estimated, the logarithm of 2·6 is 1. By taking intervals of millionths instead of to hundredths and tenths, we shall get 2·71828, a number which, in modern times, is of constant occurrence, as the base of the system founded on Napier's.

If we consider the amount of labor which has been saved by the invention of Napier, and the improvements thereon; how much trigonometrical calculations have been shortened; and how much accuracy has been insured, we may look upon the introduction of logarithms as having added a century to human progress. The result of Napier's labors is so vast and important, that its very vastness and importance have overshadowed the name of Napier himself. Few students know the name of the man to whose genius and industry they are indebted for so much; fewer still care to investigate his history. The profoundest mathematicians have lived and died, ignorant of the fact that their great benefactor was a Scotchman. To the vulgar of his own country the name suggests the successful general, or the disappointed admiral. Yet the work of Napier, the mathematician, will be of service to the great mass of mankind, when the deeds of Napier, the soldier, and Napier, the sailor, are forgotten.

FEMALE EDUCATION ABROAD.

IN England the propriety of giving girls and young women a more thorough and liberal education than has been done hitherto, has been agitated for some time. The *Saturday Review*, and journals of that mode of thinking, attack the design with sharp invective and bitter sarcasm; but the affirmative of the question is making its way rapidly, and holding its own fastly. A committee was formed for the purpose of having the pupils in girls' schools permitted and invited to take part in the University local examinations. A private examination in connection with the Cambridge local examination was held last year. The committee pronounced the result to have been favorable, and a strong desire was expressed by both students and teachers that the experimental examination might be "the first step towards the establishment of a regular and permanent system." An address praying for such a system has been signed by over eight hundred teachers, and presented to the authorities of the University.

A lecture upon this subject, by W. B. Hodgson, LL.D., has been recently published in London. The lecturer, who is eminent as a teacher, takes strong ground in favor of the proposed innovation. He does not base the claim of woman, to a more liberal culture of mind, upon any desire to enter the so-called liberal professions—to practice as lawyers, physicians, or divines—but upon a different ground. He says: "It is not necessary or desirable that we should inquire whether women ought or ought not to be Members of Parliament, or even to have votes in the election of members; or whether women ought or ought not to be physicians, or lawyers, or parsons, or dentists, or printers. I shall not be supposed to undervalue the importance of such questions, if I refuse to treat them here; and for the simple reason that they are irrevelant to our true inquiry, the nature and limits of which I have already prescribed. On these questions we may differ widely, and yet be quite agreed in thinking that it is for the interest, not only of woman, but of man not less, that women should have free and equal access to all the means of intellectual culture which help to fit the human being, man or woman, for the duties, not of a handicraft or a headcraft, but of social life, which develop the intelligence, strengthen while they enlighten the conscience, and build up the character. Of course, if woman's choice of professional occupation is to be widened, it is right and needful that she should have the special training thereto adapted; but even if it remain unchanged, her claim remains intact for that mental culture which fits, not for professional, but for human duties, which forms, not the artisan or the artist, but the individual, which confers general ability and guidance, not special knack or bent. To rest woman's claim to the most liberal culture on her right, real or supposed, to share with man the so-called professions, implies a complete misunderstanding of the ground on which *man's* claim is really based. It is not because he is to be a barrister, or a surgeon, or a merchant, but because he is to be a man with faculties and aspirations, moral and intellectual, and with social duties requiring enlightenment and guidance for their due discharge, that the boy demands and ought to receive, a liberal culture. So precisely is it with woman. Any demand for admission into the ranks of this or that profession, however just in itself the demand may be, is far subordinate to, and quite distant from the great question on which we are now engaged. It is on the inward community of human nature, not on the outward similarity of employment, that the right to an equal culture is really founded."

Dr. Hodgson even holds that whatever may be the supposed advantage of boys in mental power, yet in docility and capacity for receiving instruction, girls surpass the others. He puts the matter thus:

"Is there any one at all experienced in teaching youth of both sexes, who is not aware that other alleged differences between them, whatever the degree, do also render the task of teaching girls at once more pleasing and more successful than that of teaching boys? The quicker per-

ception, readier sympathy, greater impressionableness, greater proneness to mental as distinguished from physical exercise, which are said, more or less truly, to distinguish girls from boys, do one and all favor their progress in any study that commands their interest. Such, at least, is my own experience, after long acquaintance with youth of both sexes, of various ages, and very various ranks. I have found it so in history, in geography, in grammar, in literary composition, in languages ancient and modern, in logic, in physiology, and in economics. I have a similar assurance from others who have taught to girls mathematics and its allied sciences."

The following paragraph from the address contains also food for thought:

"We are happily fast outgrowing the time, which I can well remember, when to each sex was marked out a definite class of subjects, separated by a line not to be crossed by either. On one side, Latin, Greek, mathematics; on the other, French and Italian, or German, music, drawing, with needle work, plain and ornamental; on neither side much that is most valuable in the training of mind, the formation of character, the guidance of conduct. If girls learned any arithmetic, it was an arithmetic of their own, undegraded by any possible application to the low necessities of sublunary life. Geometry was quite tabooed. That a girl should learn Latin, and, much more, Greek, was thought as odd as that a boy should learn either music or drawing. An elderly Scotch gentleman, not very long ago, on seeing a young man seated at a piano, sarcastically inquired—'Can the cratur shoo?' (Can the creature sew?) But in our day we observe an approach on both sides to a similarity of system, far short as yet of what is desirable, and sure, I think, to come, but still an approach. In boys' schools, music, drawing, and the modern languages, are taking a place more or less befitting their importance; in girls' schools, Latin is not unknown, neither is geometry; arithmetic is fast withdrawing its concessions to the supposed numerical peculiarities of woman; while in schools for both, the greater attention to history and geography, the physical sciences, whether of observation or experiment, are making way. Much remains to be done in both and for both; much ought to be taught in both that is now untaught in either. The ever-recurring difficulty as to *time* will again and again revive the question of the comparitive importance of the subjects taught, and successive changes in the time-tables will be effected until a wise adjustment be attained."

On this side of the Atlantic we have extended somewhat the plan of female education; but there is even here a nervous horror of giving our daughters a practical education. It is not probable that many girls, so long as they are brought up to look upon dress as the chief object of life, will venture upon Latin or mathematics; but if there be any such, why not let them have the opportunity to gratify their tastes? If there be any, and there are many such, who have the ability to acquire knowledge thoroughly, and to attain notable scholarship, why should that ability not be tested? Will a woman have less power to manage a household with decision and precision because she is able to solve a problem in geometry? Will her household accounts be more confused, from a thorough acquaintance on her part with arithmetic? Will she lose all knowledge of how a ragout should be prepared, or a steak broiled, from her knowledge of chemistry? Will her fingers lose their mastery over the needle, because she reads of Penleope's needle-work in the orignal Greek?

The truth is that while there is special education to be given to either sex for special purposes,—while the boy may be taught the elements of that profession he is to embrace, and the girl made thoroughly acquainted with household economey,—there is no reason why there should be a difference in the previous general education, based solely on the difference of sex. The capacity of the individual should be the point to determine first. At all events, it is not very reasonable, and certainly not fair in the so-styled lords of creation, to forbid their daughters to acquire any solid learning, and then complain that they pass their lives in frivolous pursuits, and think of nothing and talk of nothing but dress, the fashions, and the frailties of their neighbors.

CONCENTRATION OF INSTRUCTION.

Under this title, Dr. Kern contributes an interesting article to the *Pedagogisch Archiv*, of Stettin. He says that whoever attempts to write on the concentration of instruction should begin by clearly defining the term. In this, use has been made of the sense in which it is employed in some sciences, as geometry or chemistry; but it has been because it is here used rather as a figure of speech, although it does not fully express the meaning implied. To obtain a clear conception of this idea, we must first develop that theorem in the theory of instruction which corresponds most nearly to the figurative expression, concentration, and then compare these two.

According to the popular idea, the only aim of education is the acquisition, on the part of the pupil, of a certain extent of knowledge and ability, and that system is esteemed the best which develops such knowledge and ability in the shortest possible time, with due regard to the student's health. The acquisition of the latter may serve very different purposes; but they should render him a useful member of society, enable him to "make his mark" in life, and give him the necessary information for carrying out his future intention. But they should also create and satisfy a desire for the prosecution of scientific information. It is not at all necessary that they should have exclusively utilitarian and material aims; they might even take an ideal direction. The instruction which subserves these aims exerts indeed its full influence over him whose course of education is finished, but it is not the great object of pedagogical science, not the means of direct education. This does not seek merely to give knowledge and abilities, but a degree of well classified information far superior to even a great degree of learned lore; it desires to operate on the mind, to increase, govern, and ennoble the exercise of his intellect and his volitions. But no course of instruction can directly change the will; its exercise arises mainly from the acting person's thoughts, from the relation and reaction of circumstances. This, however, is not constant but variable; and in this lies that which determines the development of the intellect. By this we mean the manner in which conceptions are formed in the mind, and the manner in which through these sensations and sympathies, and thus the entire intellectual direction of the person are caused. But if instruction shall really educate the learner it must give clearness to all the conceptions arising from all relations of man to man, and to nature; it must offer these plentifully, or, in the words of another, it should instruct the future man so as to enable him never to miss adequate causes for his willing and acting, nor to want their easy adaptation to various uses, nor to cause him to fail in employing these means for the benefit of the state and of society on account of indifference or want of religious feeling. If education shall succeed in doing this, it must apply itself to the activities of the growing man, to the development of his mental and immediate abilities and powers it must create, according to Herbart, a many-sided but well balanced interest. The word interest signifies a sort of mental activity which should cause the learner not to be satisfied merely with what he knows, but to seek further progress. The former may be considered a mere supply, which might be wanting without greatly affecting the man, but he who seeks constantly to extend the range of his knowledge has real "interest" in it. This interest is not merely a means towards the end, an aid in instruction, but it is its chief and legitimate aim.

But this interest may have various directions. We distinguish, first, those of recognition and of sympathy. That of recognition refers to the manifold uses of experiences, the laws which control them, or their æsthetic relations: that of sympathy may refer to man, to society, or to their relations to the highest being. We may, therefore, assume with Herbart six classes of interest: the empiric, the speculative, the æsthetic, the sympathetic, the social, and the religious. Instruction should develop all these classes of interest which will then be perfected by the relations of a person to his fellow-men and to nature.

History and language on the one hand, mathematics and natural philosophy on the other, are the great studies which develop all these kinds of interest. In his pedagogical criticism on the plan of instruction proposed by the counsellor Graff, Herbart, who proposed to read and really read the Odyssey with boys before he taught them Latin, proves that such reading develops all the kinds of interest; but observes, further on, that as it calls more attention to the æsthetic, sympathetic and social interests, other studies should be pursued at the same time to balance these by the greater development of the empiric, speculative and religious interests. He therefore proposes to advance the empiric by natural philosophy and geography, the speculative by mathematics, and the religious by suitable religious and ethical studies. We cannot here discuss the theory which proposes the reading of the Odyssey at the commencement of a classic course, but we can easily perceive from this reasoning, that education demands a number of cotemporaneous and carefully balanced studies.

In the preceding we have distinguished two kinds of instruction, the educating and the non-educating. There exist schools which do not aim to educate by instruction; they are those in which some particular branch is taught, an aim which is perfectly justifiable, if the demands of a general requisition have been previously complied with. But, are there any purely educational schools, that is, schools in which instruction has as its exclusive aim a general development of the intelligence? Are our classical and commercial academies, or our public schools, such educating "institutes?" A commercial school, for instance, aims to develop the knowledge needed for occupations which do not require a college or university course. Does this not point to an object foreign to the real aim of education? Even if the immediate wants of practical life are not the direct criteria of a course pursued in such a school, even if there remain some traces of a general education, yet studies are pursued alien to the normal object of pedagogic science. The same holds good of classical academies, as they prepare the students for the study of particular branches of science. If a certain degree of knowledge and ability in particular branches is considered as the sole necessary result of the course or any part of it, and thus is required to determine the standing of the institution, is it not plain that they are not exclusively educating institutes? But can it be otherwise? If youth is the time of preparation for manhood, it would be too ideal to devote it principally to the development of his general powers without view to the pupil's plans for future life. The State is right in demanding of the schools that they should prepare its future citizens for a fit exertion of their powers. Happy for the youth who receives this education in a school which knows how to govern the one by and subordinate to the other. This double aim of education interests us chiefly here, because it proves the necessity of the cotemporaneous pursuit of various studies. It refutes the reasons assigned by some for the assertion, that no more than two disciplines should be studied at the same time, while the objection formerly raised against this—that variety was wanted to interest the young learner—was easily refuted by the fact, that this is offered by each new occurrence in history, each new country in geography, and the study of a new text or reading book.

If we resume now the results obtained so far, they will be as follows: the instruction has, as its legitimate aim, to pursue, besides the general education, but subordinated to it, a course of education which will fit the learner for some occupation in life; both of these objects require the cotemporaneous pursuit of various studies, but these latter must be so arranged as to give equal force to the interests of recognition and sympathy, to develop, as Herbart says, a many-sided interest, or, as it is commonly said, to effect a harmonious many-sided education.

In regard to the number of studies, it is the first duty of pedagogic science, to develop the maxims according to which the various branches ought to follow each other, if both great directions, the historic-linguistic on the one hand, and the mathematic-philosophic on the other, are duly considered. The theory of this has been

aptly called "the statics of instruction." Its principles are derived less from the results obtained by theorizing on the objects of education, than from the corresponding teachings of psychology. In these is included the maxim, that a certain preponderance ought to be given to each new branch of science. The old must be combined with the new, and each preceding study ought to be a course of preparation to its successor. But these various studies, which are to be pursued either cotemporaneously or successively, are limited by the time and power of the pupil. The rules for their arrangement are developed by what is called the "theory of the concentration of instruction."

The time given to the schools for the effecting of their object is limited; it cannot be extended according to the instructor's desires or opinions; each age is not equally adapted to instruction, and hence the educating instruction must come to an end together with the instruction in some particular branch or branches. The school must, therefore, seek to use its time as best it may, but here also it is limited. The student must not be too much occupied; he must retain constantly the exercise of his bodily powers, in order to be enabled to develop equally his mental and physical forces, and also because, in the other case, the natural disposition to study will soon be wanting, and will be replaced by the forced attention required by discipline.

That arrangement of instruction, then, which reaches the highest possible goal, with due regard to the learner's time and physical powers, is the "Concentration of Instruction." Let us, then, quickly consider a few of the means which will tend to produce it. Some of the propositions which have been made seem to us to attain the required object with due regard to the limits of time and force, and thus to arise from a conception of concentration analogous to our own. These are chiefly propositions to the following effect: to substitute for the adjunction of studies a succession of the same, that is, to arrange the plans of instruction so as to pursue the same studies during one forenoon or afternoon; to reduce the hours of instruction to their minimum, and join the various studies in such a manner as to have them pursued continuously in successive classes.

THE RELATION OF PLANTS AND ANIMALS.

THE relation of the two great animated kingdoms of nature has been long and unsatisfactorily discussed. The similarity existing is so remarkable that one is inevitably inclined to refer both to a common origin; yet it is so difficult to detail investigations of this kind without an apparent leaning to materialism, that few scientific men of note have cared to encounter the acrimony with which many oppose such discussions. In this case, as in many others, men of great intellect and honest intent, yet biased by prejudice and committed to arbitrary interpretation of Scripture, have retarded the proper advancement of scientific knowledge. However, the main fact that the two kingdoms develop from a common point admits of no doubt, since all organized matter is reducible to the simple cell, which at times is so anomalous in its character and operations that we are scarcely able to determine whether it is the germ of an animal or of a vegetable.

Many attempts have been made to fix positive lines of distinction between plants and animals, but, as might naturally be expected, have always proved unsatisfactory. These have been chiefly based upon the structure and functions of the parts; plants being regarded as devoid of volition, nervous and muscular tissues, digestive apparatus, and in general of such properties and members as appear to be especially characteristic of animals. In this paper we will consider these points, and, although we may not arrive at any positive conclusion concerning the matter, yet we cannot fail to perceive that many of the assumed distinctions are false or im-

proper, and that, after all, the difference may be only nominal.

Whether plants are or are not volitive creatures is doubtless beyond our power to ascertain definitely; nor, indeed, is an absolute determination of the question essential, since it is quite as difficult to determine the matter respecting many animals. Plants do, however, give many evidences of instinct, or at least of some faculty akin to it. They sleep during darkness, and are wakeful during the light. It is in our power to change the period of sleep by producing artificial darkness during the day, and artificial light during the night. That light cannot be, as many have held, the only agency producing the effect, is shown by the fact, that several plants open their flowers during the night, but close them during the day. Others close them at certain hours of the day long before sunset. Plants tend to grow in an upright position, and if an attempt be made to overcome the inclination, very remarkable efforts are put forth to regain the normal position.

Concerning the existence of motion we may speak with more certainty. An apparent lack of voluntary motion is not, however, peculiar to the vegetable, since many mollusca are equally devoid of it. The oyster possesses no power of moving from place to place, yet no one would for a moment deny that oysters are animals. Therefore this point, like that of volition, is not a proper element of distinction. Nevertheless, during the early stages of existence, many plants do possess an evidently free motion, uncontrolled by external agencies. The spores of many cryptogams, according to Unger, but more especially of certain Diatomaceæ and Fucaceæ, after they are thrown off, manifest extraordinary activity for some time before coming to rest. The higher orders, although fixed in the ground, have peculiar motions of their members, therein resembling many of the lower animal orders. The curious movements of the common sunflower (*Helianthus annuus*) towards the sun are too well known to require especial notice. Those of the *Desmodium gyrans*, a leguminous plant, of the family *Hedysareæ*, are perhaps the most remarkable. The lateral leaflets of its trefoil leaf are continually in motion towards and from the central one in such a peculiar manner, that the Hindoos regard them as representing two slaves fanning their master. For a long time these movements were not understood, and were referred to some peculiar action of light, since as darkness came on the motion ceased. But, in 1861, a German savan discovered in the *Mimosa pudica* true muscular fibres, running along the mid-rib at the base of the leaves. The existence of nervous tissue in plants has not been definitely settled; yet no one, who has forcibly struck the stalk of a *M. pudica*, and noticed the instantaneous closing of the leaves, as well as the cautious manner in which they are afterwards unfolded, can fail to be convinced that nervous force is present in the plant. Certainly, presumptive evidence favors the existence of both muscular and nervous tissues, and if the plant possess these, why should we not admit of volition to use them?

Another point upon which animals and plants are supposed to differ is in that the latter possess no stomach; yet here the difference is more apparent than real. This apparent difference lies in the fact, that the ground, the plant's stomach, is not enclosed, whereas the digestive cavity of the animal is completely enclosed and carried about in the body. In all other respects the analogy is complete. The roots of a plant and the lacteals of an animal have many points in common, and perform their functions in much the same manner. Both possess the remarkable power of, in most cases, absorbing only such substances as are beneficial, while they reject such as are injurious. The fact that the plant is not compelled to go in search of its food is no peculiarity, since all bivalves are similarly constituted. The plant, like the animal, possesses the power of throwing off the waste of the system, as well as such substances as are unnecessary. Thus arise the excrements, which soon accumulate to such an extent as to render the soil poisonous; a fact well understood by agriculturists, and forming the basis of "rotation of crops." This may be experimentally illustrated by placing one branch

of a forked radish in a solution of acetate of lead, and the other in pure water. In the course of a very few days, the water will be found considerably contaminated with lead.

Nor is it entirely true that plants subsist solely upon inorganic food. Some possess the power of attracting and absorbing insects. Many Droseraceæ possess this power to a remarkable degree. The *Dionæa muscipula*, or Venus Fly-trap, of this order, is well known in South Carolina, where Sir J. E. Smith examined its peculiarities. The Pitcher plant (*Nepenthes distillatoria*) is also supposed to possess this power. All plants require for nourishment nitrogen in combination, especially as ammonia in organic matter. Many plants of the lower orders require food resembling that of the higher animals. If we place some yeast in a saccharine liquid it does not increase in quantity; but, if we add a small amount of phosphate of lime and some sal ammoniac, its bulk suddenly and greatly increases; thus showing that the mycoderms, like animals, require mineral and azotized food.

Notwithstanding the fact that nitrogen is so essential a constituent of manure, there are not wanting those, who deny that azotized compounds exist already formed in the plant, and maintain that they result from some reaction during separation. This hypothesis, however, will scarcely bear examination, since in no part of the process is any substance used necessarily which can introduce the nitrogen: so that we must admit the pre-existence of the vegeto alkalies in the plant itself. Moreover, as a positive proof, the Chinese frequently manufacture a good quality of cheese from pease and other leguminous vegetables. Since in chemical composition the alkaloids resemble the animal brain, being midway between protein and the fats, and as their action upon that organ is so remarkable as to leave little room to doubt that they are convertible into its substance, and, moreover, as they are frequently found in combination with acids much resembling those of the brain, we must regard them as playing some important, though, as yet, unascertained part, in the organism of the plant. Possibly they may be to the plant what the brain is to the animal, or more simply the true nervous tissue.

The process of assimilation in plants differs in no way from the same process in animals. Liebig asserts that the same cause determines the increase of mass in both, and regards it as differing, not in manner, but in source; the force of the one arising from external and that of the other from internal agencies. The process, however, is in great measure chemical in either case, and it matters but little, whether the nerves possess an inherent power of renewing force or receive a constant augment from without. The difference is one merely of degree. We cannot, for a moment, doubt that some peculiar force governing assimilation is inherent in the vegetable, else how could one plant secrete strychnia, and another nicotia, or how could a cell in the orange leaf secrete a simple hydro-carbon, while a cell in the flower secretes an oxygenated essential oil from the same elements? We must conclude that the force governing assimilation cannot be controlled by external agencies to any greater extent in the vegetable than in the animal organism.

Until within a very short time, the power of decomposing carbonic acid was regarded as the especially distinguishing characteristic of plants. This gas was believed to be essential to their life, as they in all parts decomposed it, assimilating the carbon and evolving the oxygen; while it was regarded as absolutely destructive to animal life. The researches of Morren, however, have done much to modify this belief and open the way up for freer examination. Dr. Grace Calvert, in his last Cantor lecture, also threw much light upon the matter while discussing "Fermentation." These gentlemen have shown that the power of decomposing carbonic acid is not peculiar to plants, for they have proved that the vibris (an infusorial discovered in fermentation and for a long time mistakenly regarded as a microscopic plant), can live only in a carbonic acid atmosphere, dying immediately upon the least dilution with oxygen, which it disengages. Other animals of the same grade possess the same power. Moreover,

there can be no doubt that birds and others of the higher animals have this faculty to a greater or less extent during sleep, since we find them then covering their nostrils in such a manner as to admit of only a very limited supply of air; and facts have been noted which by analogy would lead to the supposition that we are similarly constituted.

In the function of respiration where, according to received opinions, we might expect to discover the greatest difference, we find instead the most marked similarity. The mycoderms, already referred to as existing in yeast, die in a strongly carbonic acid atmosphere, since they eliminate this gas and inspire oxygen. The researches of M. Aug. Cahours, respecting the respiration of plants, are, however, more especially to the purpose. He first observed that oranges and lemons, if placed under a bell-glass, instead of absorbing carbonic acid, actually evolved that gas, and that the action was more intense in diffused light than in obscurity. This led him to institute a series of experiments, and, after prosecuting his inquiries to a very great extent, he arrived at the following conclusions:

When left in a limited supply of normal air, the colored portions of the plant consume oxygen and evolve carbonic acid in proportion as they are scentless or not; the quantity evolved being greater in the former than in the latter case. It also increased with the temperature, and was greater in light than in darkness. In a pure oxygen atmosphere the action was more marked. The more vital portions of the flower, the stamens and pistil, appeared to be most active in the disengagement, and a growing bud evolves more than a full-blown flower.

In addition to this, Boussingault has shown that, in darkness, plants eliminate carbon, hydrogen, and oxygen. From these facts we must conclude that in plants there is a true respiration, precisely analogous to that of animals; the carbonic acid, in each case, resulting from oxidation of the constituents. The decomposition of carbonic acid by plants must not be regarded as in any way connected with respiration, being really a digestive process, since the carbon is assimilated. The two processes should not be confounded, since the flower and colored portions are as it were lungs, while the green portions really belong to the digestive apparatus.

To the other points of supposed difference we can scarcely allude. The similarity in action and function of circulation is well known to botanists. Plants and animals alike grow from a central axis, and, although in the latter we cannot perceive continuous growth throughout life as readily as in the former, yet there is no reasonable doubt that, remaining in a normal condition, animals constantly increase in bulk. The peculiarities of reproduction are the same in each, differing only in degree.

If space permitted, we might examine the curious manner in which the two kingdoms blend. Kützing, the German naturalist, discovered in the *Ulothrix zonata* (an *Algæ* of the family *Conferaceæ*), minute animalcules with a red eye-point and a transparent mouth-piece, which, after a time, lost their animal forms, becoming converted into vegetable threads, still, however, retaining the eye-point on the lowest joint. These, with many others of the same order, do not upon death decay with fermentation, but putrefy, and thus indicate a near approach to animals. Strangely enough, the highest orders of each kingdom bear most striking resemblance to the lowest of the other in the performance of their various functions.

Thus we are unable to define the limits of the animal and vegetable kingdoms. If we had to deal with merely the highest types of each, we might be able to set some satisfactory bound, but as we descend in the scale of development, we find bodies of such simple structure, which in all their functions partake so much of each class, that we fail to determine whether they are animals or plants. "The two kingdoms may be aptly compared to the primary colors of the prismatic spectrum which become so gradually intimately blended that we fail to discover where the one terminates and the other begins."

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The Hopley Case.

IT is now four years, as our readers may remember, since all England was in a spasm of virtuous indignation. A schoolmaster, standing high in his profession; known as a careful and successful teacher; and believed to have been an honest and humane man, was arraigned on a charge of murder. He had beaten a pupil so often and so severely that death was the result. The teacher's name was Hopley—the boy's name was Cancellor. The boy was sullen, obstinate, and intractable; the teacher was determined. There were doubts upon the minds of some, as to whether the flogging was the cause of death; but the modestly suggested doubts of these were overborne by public clamor. Hopley was convicted, and sentenced to penal servitude. The public desired a capital conviction, but the judge and jury would not gratify them.

But the doubters have at length got the best of it. Those who read the evidence in this case will remember that on post-mortem examination it was shown that the boy's blood was perfectly liquid for several days after his death. On the publication of the case, this fact attracted the attention of scientific men. They investigated the matter, and came at once to the conclusion that the death was not caused by the flogging at all, but the punishment, from the tokens left, must have been by no means unusual. The observations in the case, will present the whole matter in a new light.

"6, Cavendish Place, Cavendish Square,
"*July* 6, 1862.

"1. The quantity of blood extravasated under the skin in Cancellor's body was very great.

"2. The blood so extravasated was perfectly fluid, and had evinced little, if any, tendency to coagulate.

"3. The skin covering the extravasated and diffluent blood was unbroken—the cuticle not even being separated (except at one point of the leg); there were no marks of weals, no laceration or pulpification of the subjacent muscular tissue; and in some parts, as in the left palm, *considerable extravasation without any discoloration even of the skin covering it.*

"The quantity of blood that was poured out, its diffluent character and evident want of coagulability, evince, in my opinion, the evidence of an abnormal hæmorrhagic tendency on the part of young Cancellor; in consequence of which, small wounds, whether subcutaneous or open, will bleed to an alarming and even fatal extent. This condition I have often met with in practice, and it is one much dreaded by surgeons. It will cause a person to bleed to death after the lancing of the gum, the extraction of a tooth, or the opening of a boil.

"That young Cancellor was the subject of that hæmorrhagic tendency appears to me in the highest degree probable, not only from the quantity and character of the blood thus extravasated, but also from the fact stated in paragraph 3, as to the absence of distinct marks of violence in the skin, except such as resulted from the discoloration produced by the extravasated blood,—and the absence of the pulpification of the muscles, which has been found to occur in soldiers who have undergone severe corporal punishment by flogging.

"John E. Erichsen, F.R.C.S.
"Prof. of Surgery at Univerity College, and Surgeon to the Hospital."

The faculty at large concurred in this view of the distinguished surgeon; and after a close examination of the evidence, and the opinions of experts, the Home Secretary, Sir George Grey, caused a pardon to be issued. Hopley was restored to society, and his reputation vindicated. But the record of the conviction remains, and thousands, who will never hear of the pardon, or its cause, will associate his name with cruelty and brutality. It is a case of painful interest.

The whole circumstances have been detailed at some length in a recently published pamphlet. In reading this it is impossible to doubt that Hopley was a humane and conscientious man, anxious to do his duty to his pupil and himself, and the victim of unfortuitous circumstances. His punishment is a warning to teachers to study closely the physical condition as well as the intellectual ability of their pupils, and to use the rod only in those cases where, if it be necessary, its effects will not result in a manner so fearful to the pupil. The peculiarity of the boy Cancellor, it appears from the medical authorities quoted in the pamphlet, is by no means uncommon; and a similar one might occur on this side of the Atlantic.

Proper Names.

A correspondent complains of the difference of pronunciation among the authors of text-books on geography. He instances one name which is pronounced by one writer—Buay-nos-i-res, by another, Bo-no-a-riz, and by yet two others, Bo-nus-a-riz. He asks which is right. We think that neither are. If the word be pronounced as pure Spanish, without some local modification of sound, it would be Boo-en'-ose-ah'-ir-aze. The name is a compound one from buenos [boo-en'-ose] a masculine adjective, plural, meaning good, great, strong, etc., and aires [ah'-ir-aze] a masculine substantive, plural, meaning airs, winds, aspect, etc.

He farther asks us to show the standard of proper pronunciation in such cases. It is a large demand to comply with, for which we have not the space. All we can do is to give some general remarks.

Where foreign names have a thoroughly conventional spelling and pronunciation, those should be followed. Thus we write and pronounce Vienna [Ve-en'-na], Naples [Na'-plz], and Rome. Were we to fall back on Wien, Napoli, and Roma, we would be guilty of ridiculous pedantry, and would be obliged to translate as we spoke for the benefit of our hearers. But where the spelling and pronunciation are not settled by English or American usage, we should give both their proper letters and sounds, or if they were originally in other than the Roman alphabet, then reproduce them in such letters as will best convey the sounds. Thus, Pesth-Buda should be pronounced Pesht-Boo'-dah, and not Pesth-Byu'-dai; while Queretaro is given as Ka-ra'-tah-ro, and not as Kwer-re-ta'-ro.

There is little difficulty in determining the correct sounds. As a general thing, foreign tongues, unlike the English language, have no exceptional pronunciation. The sounds of the letters having been acquired in Spanish, Italian, German, Polish, and Magyar—and this can be done in a very short while, any proper name in these languages may be correctly and readily pronounced. Most of these sounds have corresponding ones in our own language. Where they have not they may be obtained from a native, or some accomplished linguist. Thus the *ni* in "onion" is identical with the *gn* of the French, the *ny* of the Hungarians, and the *ñ* of the Spaniards; the *ch* of the Germans, which is also an Arabic sound, is found in the formation of the Scotch "loch;" the *s* and *ss* of the Magyars, differing only in intensity, the *sch* of the Germans, and the *sz* of the Poles, are the same as our *sh;* while the *ö* of Germans and Magyars, the short sound of *eu* in French, and that peculiar Polish dental guttural, represented by an *l* with a curve of contrary flexure laid across its middle, have no corresponding sounds in our language. There is another difference to be noted. In some European languages each sound is distinctly given, while in others many of them melt into each other. Thus, in Spanish, Santiago is Sant-ee-ah'-go, not Sant-yea'-go; while Kosciusko is really Kos-shew'-sko in three syllables, and not Kos-se-us'-ko in four, the *e* and *oo* so melting into each other as to produce nearly the sound of the English *u* in "mute."

It will be seen then that there is little bar in the way of a teacher who desires to

master the pronunciation of proper names in foreign languages. It is equally easy for those who write text-books on geography to acquire the same kind of knowledge; but it is possible that they do not think so.

No Shooting Allowed.

The school-teachers of Westphalia recently addressed a petition, to the Prussian House of Representatives, requesting the right of hunting to be accorded to them. The House after looking at the matter right, left, and in all its aspects, and after having solemnly smoked divers pipes of Kanaster, and having swallowed several flagons of Rhenish, came to the conclusion that it was inexpedient to grant the prayer of the petitioners. Not even a rat nor a tom-tit is to be shot henceforth by a Prussian schoolmaster. He may meet with a wild boar as he takes his walk in the forest of Bierundkuchenwald, or disturb a dozen conies on the summit of the Nixcumherausberg, but he must stay his scrofacidal or cunicidal hand, and let the masculine swine and frisking conies pass shot-free. He may teach the young idea how to shoot; but he must not shoot any thing himself. Practice must not be added to precept. Of course, we have great sympathy with our German fellow-pedagogues, and great indignation at the German legislators; for we cannot see why those who handle the birch rods so effectively, should not make very good Nimrods.

EDITORIAL CORRESPONDENCE.

London, November 9, 1864.

At Eton and Westminster I find the existence of unwritten tradition, which embodies laws for the government of those schools. In other institutions the personal authority of the preceptor is recognized as law. The relation of the scholar to his teacher is governed by sincere respect for his character and acquisitions. Dr. Arnold, like Professor Stuart, of Andover, controlled his pupils by the earnestness of his manner, and in one of his letters has said, "I have learned by experience that the sure foundation of good government in school depends on the character of the family relation. Certainly the relation between parent and child in other countries of Europe is on a different footing; there is more of cordial intimacy, more of real familiar friendship, than generally exist among us."

Corporeal punishment has not yet been abolished in the higher English schools. At Eton, even pupils in the "sixth form," are liable to it in certain cases of gross violation of duty. But it is always administered by the "Head Master."

There is a tradition at Eton which gives authority to the flogging system among the pupils. When Lord Holland, during the last century, sent his son Charles James Fox, the celebrated English orator and minister, to pursue his studies beneath its classic shades, he furnished him with a young cavalier's suit, made by a Parisian tailor, instead of the regular academic robes. On the refusal of young Fox to change his dress, he became liable to punishment in accordance with the rules, which was administered by the Rector, Dr. Davis. This so cured the youth's folly, that his father observed, it was a useful lesson for his future life. It is not safe, however, for the master to go beyond the limit allowed by school regulations. An instructor of long standing informed me, that he always gave one less than the rules allowed, quoting the instance of St. Paul, who "five times received forty stripes *save one*."

Dr. Arnold employed corporeal punishment only in cases of falsehood, but the custom varies with the different schools. At Eton, there is almost as much as in the public schools, while in others, it is employed only in case of extreme violation of the rules. Public opinion is very naturally and very generally opposed to what is popularly called the "flogging system," and many illustrations of tyrannical schoolmasters were quoted in my hearing, while the rectors and head masters give as their authority that opinion of Dr. Johnson, who at one period was autocrat in education as well as in literature, "If you abolish flogging in schools, what they gain at one end, they will lose at the other."

I have alluded to the power of tradition in the English schools. No better evidence of this is given than in the influence of the "consuetudinaria," or Latin maxims, to

be seen in the famous "Blue Coat" school at London. There over seven hundred youths are controlled by these unwritten orders. A few are given as examples of the rest—"*In Temple;* oculi ne vagantor —Silentium esto—Nihil profanum legitor —*In Schola* clare ad preceptorem loquitor —ortho graphice scribito—In atrio; ne quis fluestras saxis pilisque petito"—and in general, "aut disce, aut discede." You will frequently hear boys of eight and ten years of age repeating these as glibly as the Lord's prayer.

While there is a decided tendency to resort to the flogging system in extreme cases, there is also a disposition, which is increasing in power, to treat the pupil as a gentleman, as early as practicable. Especially is this tried among those institutions controlled by the Society of Friends. One of these, which contains about 300 pupils, has this stipulation in its regulations. "Our youth should be trained with a strict regard to truth and integrity, as well as simplicity and plainness of speech, behavior, dress, and apparel, and they should be warned against the vain fashions, corrupt customs, and unprofitable conversation of the world, and against the public pastimes and pernicious diversions of the age."

While this is praiseworthy, there is often danger, especially in our day, that too much freedom may be allowed. Sir Fowell Buxton, the friend of Wilberforce, has left on record, in his letters to his son, a noble object for the attainment of a liberal minded youth, "Let your first study be, to show to the world, that you are not a man of straw, but that something of iron exists in your nature; Let men know, that you will do what you have said you will, that you have firm and not weak purposes which control your actions." Thomas Arnold was a remarkable example of such conduct in that miniature world, the school. Though liable to depression, he found relief in the incessant activity of Christian love. The reaction of his determined will brought relief to his spirit, and when in gloom with regard to duty, he seemed ever to hear the command, "Follow thou me."

But I hasten from the internal government of the English schools to those arrangements so necessary for the comfort of the scholars in regard to food, lodging, and clothing.

Eton has about 700 pupils, of which only 70 live in the institution; the rest, who have the surname of "oppidans,"* reside in private houses, kept generally by women, who are called by the boys "dames." Each of these matrons receives her authority to board the scholars from the Head Master, who can withdraw this permission if the oversight is not satisfactory. Dr. Arnold would never allow his pupils to board in any other family except those of his submasters, because, to quote his own words, he was sure that such households were an "epitome of the whole school."

The internal arrangements for sleeping are admirable. In the Charter House school, at London, they [the bedsteads?] are so framed as to assume the forms of secretaries, in the upper portion of which books are stored. The neatness and order of the sleeping rooms at Westminster and Eton are well known. Particular attention is paid to the warming, lighting, and ventilation of the apartments. At the Blue Coat school there is a proverb, that "cleanliness is next to godliness." In cases of sickness, in addition to the best medical skill, first-class nurses, generally middle-aged matrons, are furnished in great numbers. The servants are always young men, of good moral character, generally well-educated, who perform all menial offices, because they are well paid for them. In fact, every provision is made for the proper training of those who are to act as gentlemen, and should have the manners of such. May the day be not far distant, when our wealthy merchants shall be willing to bestow their fortunes on similar institutions —making them the homes of noble youth, who shall be kindly cared for, and trained for usefulness among men.

Yours sincerely, H. E. D.

SCIENCE AND THE ARTS.

——On May 19, Mr. Nasmyth stated at the Royal Institution that the bulk of the moon, as compared with that of the earth, was as 1 to 49, while the surfaces were as 1 to 16. Supposing, then, that the earth and moon were formed at the same time by a condensation of nebulous matter, the moon, because of its greater surface as compared with its bulk, would cool much more rapidly than the earth, and therefore solidify much sooner. Hence, it must be

* See the leading paper on Eton in our October number.

an object of great antiquity, and, from the absence of air and water, its surface can have undergone no change for millions of ages. He regards the numerous cracks and fissures on the moon's surface as resulting from the contraction of the crust during the period of its rapid congelation.

——During his lecture on June 10th, Dr. Tyndall entered into a consideration of the changes which the molecules of a bar of soft iron undergo, when it becomes a temporary induced magnet by means of current passed through a surrounding helix. That such changes occur is proved by the fact, that, when the bar is magnetized and demagnetized in succession by rapidly breaking the current, it is thrown into vibration causing an audible sound. Ampére supposed this alteration to be attended by a shortening of the bar, but Dr. Joule has shown that the bar is lengthened. The delicate experiment, proving this, was shown to a large audience by means of very ingeniously arranged apparatus. Upon the upper end of the bar rested a brass rod, which, by means of delicate leverage, acted upon a hair-spring turning a small mirror. Upon its conversion into an induced magnet, the bar lengthened, and thereby depressed the mirror. As the amount of depression was too slight to be directly perceived by the audience, a ray of light was reflected upon a screen from the mirror, the least motion of which caused a very perceptible change in position of the reflected ray.

——M. Regnault communicated to the French Academy an interesting paper concerning chlorid of copper. A plate of copper, dipped in a solution of the perchlorid of copper or iron, becomes covered with cuprous chlorid as a greyish white layer, which is remarkable for its sensibility to light. A negative placed on a plate so sensativised gives a positive picture of great beauty.

——Professor Evans has published a paper in *Silliman's Journal* for September, to account for the peculiar action of oil-wells. He regards them as originating in cavities of not great horizontal extent. These cavities contain oil, gas and water, placed according to their specific gravity. The oil is forced out by pressure of the gas. When the gas is exhausted, the flow of oil ceases until the supply of gas is restored. These wells vary in depth from 100 to 800 feet. Respecting the origin of these wells, a most original theory was offered a short time ago at the Polytechnic Association of the American Institute by a gentleman, who held that they resulted from the decomposition of whales, which sank, after death, to the bottom of the ocean, which, in the early day, covered the whole of our land.

——Father Secchi, of Rome, has laid before the Academy of Science, at Paris, the results of his observations of the atmosphere of Jupiter by the spectrum apparatus, which confirm the existence of certain special lines differing from our own. The line C, as well as its atmospheric band, is totally absent in Jupiter's spectrum, and other lines are differently arranged.

——Mr. W. F. Barrett, assistant in the Physical Laboratory of the Royal Institution, has published in the *Philosophical Magazine* (at the request of Professor Tyndall) a record of his remarkable experiments on the composition of the human breath, made chiefly by means of the apparatus employed by Dr. Tyndall in his researches on the absorption and radiation of heat by gaseous matter. Carefully prepared vulcanized india-rubber bags were filled with air from the lungs—1, about half an hour after rising; 2, about ten minutes after breakfast; 3, after a brisk walk; and 4, after severe exertion. Dr. Frankland determined exactly the amount of carbonic acid in each bag. A series of fourteen tables shows the amount of ten sion in the air, the carbonic acid in it, its powers of absorption, etc. The following is the proportion of the carbonic acid in the breath in the above-mentioned conditions:—1, 4.311; 2, 4.556; 3, 4.061; 4, 5.212. Absorption per cent. by 30 inches of breath: in bag 1, 50.6; bag 2, 52.8; bag 3, 53.7; bag 4, 54.

——The *Chemical News*, No. 246, contains an abridgment of a paper on the

combinations of the remarkable metal to which the name Ammonium has been given, by M. W. Weyl. In this paper M. Weyl seeks to explain how far the volatile alkali ammonia may be reconciled with the existence of the metal; his arguments being strengthened by his having produced a new ammonium, and by the mode of its formation and decomposition. He states that he first sought to obtain a mercuric oxide of ammonium to use for the production of other compounds with electro negative bodies, which he effected by making dry ammonical gas act upon yellow oxide of mercury. In air the new compound rapidly absorbed carbonic acid and lost ammonia, the same taking place over carbonic acid. Rapidly heated in a flame, it became brown, and exploded most vehemently; but by a very careful and gradual rise of temperature even thirty grains were decomposed without explosion.

——Professor Agassiz in the *Atlantic Monthly*, comes to the conclusion that the continent of North America was at one time covered with ice a mile in thickness. The proof is that the slopes of the Alleghany mountains are glacier-worn on the very top, except a few points which were above the level of the icy mass. Mount Washington, for instance, is over six thousand feet high, and the rough unpolished surface of its summits, covered with loose fragments, just below the level at which glacier marks come to an end, tells us that it lifted its head alone above the desolate waste of ice and snow. In this region, then, the thickness of the sheet could not be less than six thousand feet, and this is in keeping with the same kind of evidence in other parts of the country; for, wherever the mountains are much below the six thousand feet, the ice seems to have passed directly over them, while the few peaks rising on the heights are left untouched. The glacier, he argues, was God's great plow, and when the ice vanished from the face of the land, it left it prepared for the hand of the husbandman. The hard surface of the rocks was ground to powder, the elements of the soil were mingled in fair proportions, granite was carried into the lime regions, lime was mingled with the more arid and unproductive districts, and a soil was prepared fit for the agricultural uses of man. There are evidences all over the polar regions to show that at one period the heat of the tropics extended all over the globe. The ice period is supposed to be long subsequent to this, and next to the last before the advent of this earth.

——A new measurement of Ben Macdhui, and the other mountains of the Cairngorm group, has just been made by the Royal Engineers engaged upon that part of the Ordnance Survey of Scotland. Ben Macdhui, which was formerly supposed to be 4,390 feet in height, is now set down at nearly 100 feet less; viz., 4,296. Ben Macdhui has of late years been supposed to be the highest mountain in Britain, but the new measurement restores the supremacy to Ben Nevis.

Ann Arbor School District
NO. ONE,
ANN ARBOR, MICH.

MISCELLANY.

——We seldom give our publishers much notice in these pages, for we cannot afford the space; and they must be content to take their chances like the world at large, in the supplementary advertising sheets. But a review of one of their most popular publications, in the London *Reader*, contains some points complimentary to the country at large, which we quote briefly. The reviewer says:

"Mr. Watson's volumes belong to that class of sturdy, thorough text-books we receive from America, referred to in a recent leading article in our journal as tending to give us a very favorable impression respecting educated Americans. They are got up in a style of binding, typography, and illustration, which does credit to the American press. The 'Manual of Calisthenics' is extracted from the large 'Handbook,' with such alterations as were necessary to its completeness as a distinct

treatise, and is intended for those who do not desire to employ apparatus of any kind. It requires no separate notice. The 'Handbook' embraces the entire curriculum of physical culture, and is a complete gymnastic drill-book, with words of command and classes of movements systematically arranged, together with all necessary exercises for the lungs, the voice, the organs of speech, the joints, the sinews, and the muscles. The first part of the volume, which treats of 'Vocal Gymnastics,' contains a carefully-arranged series of exercises in Respiration, Phonetics, and Elocution, and is enriched with a selection of the best English poetry. Mr. Watson has treated the whole subject of vocal gymnastics with the most elaborate care, and has given, in this part of the volume, one of the ablest treatises on elocution and the general management of the respiratory and vocal organs which we have ever seen. Nothing could be better than the accompanying series of poetical reading-exercises; and the inflections, accentuations, &c., are indicated in a skillful and judicious manner."

After a long and able analytical review of the two books, the reviewer closes as follows:

"It is not detracting from the merits of the able teachers of Calisthenics and Gymnastics in England to say that these importations from across the Atlantic will give a stimulus to the study and practice of these health-giving exercises among us. None will rejoice more than they in the attention these volumes may awaken or the improvements they may suggest. To their contents we would earnestly invite the attention of all classes of our countrymen.... We practiced these exercises to recover health; we would advise others to practice them to keep it. It is when health is lost or impaired that one can sympathise with the assertion of Professor Kloss, that 'He who has it has all things; he who lacks it has nothing.'"

——Was it not Sydney Smith who asked once—"Who reads an American book?" It would appear not only that well-informed Englishmen read American books, but that the bloods of London adopt in part our peculiarities of costume; for an article on "Croquet," in a London literary journal, opens as follows:

"We warn ladies in turban hats and Balmoral boots that we have no intention of setting up as an authority on croquet; and they may as well inform their friends in wide-awakes and knickerbockers of our resolve."

——At a recent meeting of the British Association, Mr. Groom exhibited tables of the food eaten by each of the smaller birds, and showed that it varied very much, according to the season of the year. He had arrived at the conclusion that it was wise to protect insectivorous birds. Mr. Groom admitted that the buds of some trees were sometimes destroyed, but asserted that it was only when the birds were in search of a more destructive grub that lay concealed within these buds. Another speaker remarked, that in Holland the eagles and hawks had been destroyed, and, as a consequence. hares had increased inordinately; also, in the lowlands, in consequence of the destruction of birds of prey, wood-pigeons had increased in like manner. That the value of insect-eating birds was duly estimated elsewhere, might be learned by their being exported to New Zealand from this country. In Nova Scotia, they were forbidden to kill sparrows and other small birds under a penalty of £2. One day he found a farmer on his estate shooting wood-pigeons in a barley-field, and complained that he was disturbing the game, to which the answer was that the pigeons were destroying a crop of barley. The bird's crop, however, on being opened, was found to be full of seed of the common spurry. He was glad that the little water-ouzel had been absolved from the charge that had been made against him of eating fish-spawn. At one time there was a premium of 2s. 6d. put on his head in the North. Instead of eating fish-spawn, the larvæ of one of the May flies, destructive to salmon-spawn, had been found in its stomach.

——The National Library of Madrid has recently been presented with the only copy of the first edition of Don Quixote known to exist in Spain. The donor was Senor Justo Zapala, of Teruel.

EDUCATIONAL INTELLIGENCE.

——We are glad to find that there is some prospect that the great demand for practical, well-educated chemists will in future be supplied by our own institutions of learning. There are at present excellent chemical laboratories for the instruction of young men at New Haven, Boston, and other cities. New York has long been deficient in this branch of education, but her reputation may yet be redeemed, since Professors John C. and Henry Draper have recently established a practical chemical school in the University Medical College (Fourteenth street), which is well attended, and will, we hope, be the nucleus of a school of mines in the University of New York.

——A Mr. Marcus, principal of a high school for ladies, in one of the Prussian provinces, is also editor of a paper which maintains principles differing from those of the government. The ministry decided that he must not continue as editor, or, if he insisted on that, he must resign his office as principal of a school. Mr. Marcus appealed from this decision to the Prussian House of Representatives, who passed a resolution declaring the decision of the ministry to be illegal. The same house rejected a petition of the school teachers of the province of Westphalia, demanding the exercise of the general right of hunting, it being thought inexpedient to grant this privilege to those connected with schools. The teachers may teach the young idea how to shoot, but they must not shoot, themselves.

——At a meeting of the Common Council of Berlin, reported in the *Rheinesche Blätter*, it was resolved to raise the pay of the teachers of the "Real" schools, as follows: directors are to receive henceforth 2,300 thlr. per annum; teachers of the first-class (Oberlehern) receive from 800 to 1,500 thlr. a year; ordinary tutors, from 600 to 800 a year; teachers at the elementary classes at high schools receive from 500 to 750 thlr. a year; principals at congregational schools are to be paid 750 to 900 thlr. a year; teachers at elementary classes of congregational schools, from 400 to 750 thlr. a year; lady teachers, to be employed exclusively for instruction in sewing, &c., 300 thlr. a year.

——A school for the education of idiots has been founded at Stettin, in the province of Pommerania, in Prussia. It was opened October the 14th last, and has now published its full report. Its funds consist of donations to the amount of 8,000 thalers, and loans to the amount of 10,700 thlr. The report states that there are over 600 idiotic children in the province of Pommerania who need education. The report next proceeds to a review of the schools for the education of idiotic children existing in Europe. France contains three; two at Paris, and the third at Laforce (Department of the Dordogne), founded by an English minister, John Bost. Italy contains but one, at Aosta, in the Piedmont. In England there are five, one at Bath, one at Highgate, at London, one at Caulswood in Surrey, one at Essex Hall, and one at Wakefield, besides three small private institutions. In Scotland there are two, one at Baldovan, near Dundee, and one at Edinburgh. In Holland there are two at the Hague and at Utrecht. Denmark also has two at Sonderburg, in the island of Alsew, and at Copenhagen.

Of German States, Wirtenburg has two, Bavaria two, Saxony one, Holstein one, Hanover one, Austria two, and Prussia two besides that at Stettin.

——The educational statistics at Leipsic show that while the attendance at the public schools has advanced with the population of the town, the attendance at the private schools has decreased. In 1831 the proportion was 8.31 at the public, and 3.43 at the private schools; while in 1864 the former reached 13.01, and the latter fell off to 1.14.

——The Brocken, the highest of the Harz Mountains, will, by next spring, be connected by telegraph with the Ilsenburg, the loftiest mountain in Saxony.

——According to the *Allgemeire Schlu-Zeitung*, the oldest educational weekly in Germany, there are now in the German States sixty-three educational periodicals, embracing weeklies, semi-monthlies, monthlies, quarterlies and half-yearlies. This list does not include periodicals devoted to special departments.

NEW BOOKS.

Our readers may remember the war of the dictionaries, and a very uncivil war it proved to be, which raged so violently for the last few years, and only died out recently—as many other wars have done—from the apparent exhaustion of the combatants. The partisans of Webster, on the one side, and Worcester, on the other, have an opportunity of gratifying their combative propensities, if they are fully recovered from their prostration; for a new illustrated edition of Webster has just been issued,[1] which, in all points, surpasses former editions, and will be the signal, we suppose, for a renewed effort on the part of rival publishers. Yet we submit whether "Webster's Dictionary" is not getting to be a misnomer. So many eminent scholars have been engaged in the work of revision and addition; so much have they softened or changed the moot peculiarities of the original; and so extensive have been their additions, that little remains of the original except the basis. Even the vocabulary, which, in the original, went but little beyond seventy thousand words, has reached the number of one hundred and forty thousand. And these additions to the stock appear to be legitimate, the compound words, that explain themselves, having been excluded. The mode of accentuation is vastly improved. Numerous additional illustrations are given, and the various synonyms are arranged in their regular order. Outside of the ordinary vocabulary are supplementary ones. Thus we have pronouncing vocabularies of Scriptural, Greek, Latin, Geographical, Biographical, and English Christian Names, as well as the names of noted fictitious persons and places; an etymological vocabulary of Geographical Names; a collection of words and phrases from ancient and modern languages; tables of abbreviations, contractions, and arbitrary signs used in writing and printing; and a collection of ancient, foreign, and remarkable alphabets. As the dictionary now stands, a large quarto volume of 1,840 pages, combining the results of the labor of many of the ripest scholars in the country, it is a vast monument of industry and research, of which its publishers may well be proud. It is our intention to notice its peculiar features, at more length, in connection with those of similar publications, in a future number, to which time we reserve our further comment.

We have long desired to see an elementary treatise on geology, for the use of schools, which should possess sufficient thoroughness, without being encumbered with details. The larger volumes on the subject are too costly for the wear and tear of school use, and so ponderous as to invest the subject with a certain amount of terror to youthful pupils. Our desire has been gratified, and the general want of teachers fulfilled, by an abridgment of Dana's larger work, made by the author.[2] A very good abridgment it proves to be—containing all the essential parts of the larger treatise. The volume is thorough, without being verbose; and concise, without being dry. The illustrations are skillfully designed and happily chosen; the mechanical execution neat and beautiful; and the book, as a whole, both interesting and attractive.

Of collections of music for schools and families there has been apparently an overissue. Yet there have been few without some novel feature of addition or omission; and every variety of taste can be suited. The newly-issued and enlarged edition of "The Silver Lute"[3] is adapted to the views and feelings of a large number of teachers and parents, and is particularly well-suited in its selections to the tastes of young scholars. There is prefixed the admirable elementary treatise of Dr. Mason on Musical Notation; and following this is a series of progressive song-lessons of great value. We commend this little book to the careful consideration of school trustees and teachers.

In the way of church music we have a new publication of merit, under the editorial supervision of Gustave Blessner, a composer of some celebrity.[4] There is much original-

(1) A New Dictionary of the English Language. By N. Webster, Ll. D. A new revised and illustrated edition. Springfield: G. & C. Merriam. Royal 4to, pp. 1,864.

(2) A Text-book of Geology. Designed for Schools and Academies. By James D. Dana, Ll. D. Illustrated by 375 wood-cuts. Philadelphia: Theodore Bliss & Co. 16mo, pp. vi-354.

(3) The Silver Lute. A new Singing-Book for Schools, Academies, and Juvenile Classes. New York and Philadelphia: Schermerhorn, Bancroft & Co. Oblong 16mo, pp. 215.

(4) Flora Sacra. A new Collection of Church Music, intended for all denominations, for singing schools, seminaries, private circles, and musical conventions. By G Blessner. New York: S. T. Gordon.

ity in this collection, in parts, and as a whole. Along with a number of good new tunes, there are some of the best old ones. There is a small, but judicious selection of chaunts. It is possible that some of the airs may have a rather secular tone; but they are marked by originality and good taste, and do not mar the unity of the work. A good word may be said in favor of the organ-score, which has been introduced, and will do much towards establishing the book in popular favor.

So long as recitations obtain in public schools, good recitation books are needed. "The Patriotic Speaker," of Raymond,[5] is an attempt to supply this want; but, we regret to say, is not entirely within our approval. While it contains much that is admirable, there is in its contents a mixture of ephemeral and trivial matter, by no means calculated to improve the juvenile taste. The collection is so full, however, that a judicious selection may be made by a careful teacher, which will satisfy the requirement of his judgment.

Another void in the book-selling world has been filled up, and creditably, with the new book of sports and games for boys, just issued.[6] The new publication differs from the ordinary reprints of English works in its nationality, its fullness of details, and its thorough teaching. There is not a physical or mental game of note that is neglected, and many, hitherto little known, have been introduced. From "Follow my Leader" up to "Base Ball," it takes in all that boys desire to know, and will speedily become standard authority. The sections devoted to dogs, rabbits, cage birds, and other pets; to carpentry, painting, and gardening; to boating, riding, driving, skating, and swimming —may be referred to as specimens of how clearly words and engravings can impart knowledge to the youthful reader. The boy who is fortunate enough to possess a copy of this complete and elegant manual will prize it as a great treasure. Taking the received view that play, properly regulated, is as necessary as study, the publishers have done good service to the public, by the issue of this work.

In noticing juvenile books, we must not forget the "Evergreen Stories,"[7] which, in themselves, form a Lilliputian library. There are eight of these showy booklets—"Loving Words," "Playing Robinson Crusoe," "Harry the Shrimper," "The Tent in the Garden," "The Broken Arm," "The Water Melon," "Willie Wilson," "Don't Touch It," "The White Kitten," and "Peter and his Donkey." The stories are well written, possessing merit in tone, style, and subjects, and will prove exceedingly interesting to the younger reader. A little lady, eight years of age, in whose critical judgment on such matters we are disposed to repose confidence, has read the books referred to, and pronounces them to be "very nice."

We are glad to see that the "Pulpit and Rostrum" has been revived,[8] by proper publishers. It is a necessity of the times. Of the many admirable discourses of the day, thus preserved from loss, we may notice particularly: "The Grandeurs of Astronomy," by the late Professor (afterwards General) Mitchell; "Tributes to Humboldt, Webster, and Irving," by Bancroft, Agassiz, Everett, Lieber, Bache, Guyot, and Bocock; and the three differing speeches on the "Civil War," by Lloyd Garrison, Garrett Davis, and Alexander H. Stephens. These numbers at least should be bound up together, as admirable things of their kind, placed in the best form for preservation.

In the way of novelty we know of nothing more striking than Perce's Magnetic Globe. To all appearance, the one before us is a handsomely finished specimen of the ordinary globe, containing all the recent discoveries and territorial divisions. Its interest then is less in its externals than in its hidden peculiarities. It is made of iron, hollow, and of less weight than other globes, and is highly magnetized. With it are a number of magnetic objects, representing the various races of mankind, animals, light-houses, ships, and steamers, which, adhering to the surface where placed, serve to illustrate in a striking way, the attraction of gravitation, the rotundity and diurnal motion of the earth, the vicissitudes of day and night, and many other matters, almost impossible to convey to the minds of children by any other method. In addition to these the publishers[9] have prepared, or are preparing, magnetic objects to illustrate almost every branch of study. Among these are a series of profiles, prepared under the direction of Professor Guyot, under whose supervision the maps are colored to represent physical peculiarities. These profiles, affixed on the proper designated lines, afford a comprehensive view of the contour of the earth, its mountain ranges, its plateaus and valleys; and their accuracy can be depended on. Some of the States have purchased one or more of Guyot's Physical Maps, for each of their public schools. It would be serviceable to teachers and pupils, if they were to pursue the same conduct so far as these new globes are concerned.

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(5) THE PATRIOTIC SPEAKER. Consisting of Specimens of Modern Eloquence. Together with Poetical Pieces adapted for Recitation; and Dramatical Pieces for Exhibition. By R. R. RAYMOND, A. M. New York: A. S. Barnes & Burr. 8vo, pp. 524.

(6) THE AMERICAN BOY'S BOOK OF SPORTS AND GAMES. A Repository of In-door and Out-door Amusement for Boys and Youth. Illustrated with 694 engravings. New York: Dick & Fitzgerald. 12mo, pp. 600.

(7) EVERGREEN STORIES. New York: Wm. Wood & Co. 8 vols. 64mo, each pp. 64.

(8) THE PULPIT AND ROSTRUM. New York and Philadelphia: Schermerhorn, Bancroft & Co. *Serial.*

(9) New York: C. Scribner & Co. and John F. Trow.